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Brief discussion of green buildings

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Abstract

With the development of social, people have an increasing requirement for living environment. Green buildings and sustainable urban development are the urgent task in many Chinese cities. However, under the restriction of decision-making, planning, development and management, green buildings face the growing problem. The most prominent problem is not its economic rationality, but the lacking of moral foundation and technology combination. These three parts should be organic unity which composing the integrated concept of green buildings.

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1. Moral basis of green building

1.1. Significance of green buildings

The conflicts of contemporary social remind us obviously that human are the world's largest contradictions maker. After the unlimited expansion of Cities, the huge hidden danger was buried in the future of mankind. The problem is not to enrich the modern city, but how to regulate it. This elicited a question, how human to treat the world which creation by their hands. Since the 1970s' oil crisis, to the famous Club of Rome report' "The Limits to Growth", then to the current "low carbon" concept, we gradually aware that human beings must learn to restrain themselves' infinite endless desire in the process of development, otherwise they would bear a merciless counteraction from nature. As a result, the idea of green buildings began to sprout, and the theory and practice of green building and sustainable cities development become popular.

1.2. Content of green buildings

The widely cited definition of sustainability is began from 1987 the World Commission on Environment and Development report entitled "The Future of Mankind". The so-called "sustainable development" is "meeting the current needs of development, on the basis of undamaging the future of human societal economic interests." This long-term point of view is very meaningful and worth further consideration. For the architecture industry, the green and sustainable development mainly refers to that, when considering environmental, urban and architectural issues, it should be taken into account which is the short-term interests of contemporary and the long-term interests of the entire human race; it should be considering one region's local interests and the whole world as a whole, sharing the limited earth resources with future people on this planet in a fairly and reasonable manner. The wasting of resources and the environmental pollution should be also eliminate in the maximize degree. As Lawrence said in the "Sustainable Seattle", "which means the sustainability is that making a happiness life more than survive, so if we really want to sustainable development, consumption must be reduce." The over-consumption of resources and environment is equivalent to doing harmful to human beings themselves.

1.3. Architect's responsibility

Obviously, the emergence of sustainable ideology not only means that the re-understanding for the relationship between mankind and environment, ecological, but also means that the development and re-deepen the contemporary cultural and moral ideas. Only in this way, would it be the ultimate concern on human society based on the long-term and overall interests. This makes green buildings and sustainable cites different from any kind of other construction genre in the past. Also in this sense, we can even say that green building is another revolution since modern architecture has been. In those years, modern architecture has firstly researched the social economic as the basic condition in building development, taking social progress and human equality as a sublime goal of architecture and pursuit. Now, green building will take the interaction and the balance between human society and nature as the starting point of development, and define mankind themselves as a part of natural, to re-think and delimit man and man-made environment in the world position. In this way, the architect shoulder greater responsibility on the human when engaging in building design work.

2. Economic rationality of green building

2.1. Relationship among investment, short-term and long-term benefits returns

People have a mindset that it could hardly to accept a new idea or technology which has less short-term benefits reruns than traditional thinking or technology, even if the new things have a better long-term benefits, such as more economical maintenance and management in construction, long life and better resource conservation, etc. it is a common problem in architecture, urban, and many social aspects, especially in globalization, it has become a threshold of social progress. This obstacle must be crossed if we want to promote the green buildings based on the principles of sustainable development. Therefore, it is very importance that studying the relationship among investment, short-term, long-term benefits returns in sustainable architecture, which is a main troublesome problems we will encountered in the process from green theory to practice.

2.2. Confusion of investors

According to the experience of European countries, in the aspect of economic, green buildings or sustainable urban were some projects with more costs in prophase investment and relatively slower speed in benefits returns [1]. More importantly, sometimes, the final winner might not be the one who was the main investors in the green project, the benefits would shared by more users who fruition the green facilities. Even so and generally, it also would take many years to see the results that the resources conserving value began greater than the investment spending on keeping ecological balance. All of this will make decision makers and investors feel discourage and powerless.

2.3. Reasonable compensation mechanism

A new set of values and of conduct code should be established on the base of sustainable principles if we want to fix the issues, such as the widely using of energy-saving equipment and materials, non-pollution materials and many other resource-saving measures, etc. All of these are important part of the green design. On the other hand, the economic feasibility of ecological construction should be strengthened. That means the government should adjust their work around policy, legislation and taxation, etc. Especially at the initial stage, some effective measures, which based on well economic, social and moral, should be taken to compensate for the investors' loss caused by additional investments [2]; otherwise, the green buildings will be beautiful castles in the air.

3. Technologies combination in green buildings

Although there are many good cases can be study in this field, we should distinguish the difference between researching technology and practicing technology. It will help us finding a starting point to practice green concept and sustainable conscious both in conscious and methods, and moving forward to culturing the demand and interesting of the advanced green technology in the whole society. Then the green buildings can enter a virtuous market circle.

3.1. Researching technology and practicing technology

In the scientific sense, developing green architectures relies not only on those latest relational technologies, but also on the best collocation and arrangement of those technologies, or called as researching technologies combination. But in actual operation, the green buildings are mainly built on some existing mature and economical technologies, or called as practicing technology combination.

3.2. Technologies combination

No matter which technology would be used, green building is always based on the principle of 3R (reduce, reuse, recycle) [3]. Many success projects have shown that the green buildings are not really hard to achieve. The key lies in the architect's mind, with this goal, as long as architects grasp the local condition in deep understanding, then doing some simple technologies combination in practices. The green buildings may be full construct in a common sense. Therefore, green buildings are the buildings that filled with the fill local features, which not only referring the form, but also the meeting to local natural, social, economic, resource and other conditions. Therefore, the technology combination and forms of green buildings' will always change.

4. Summary

The basic Contents of green buildings can be summarized as: reducing the building load to environmental; providing a safe, healthy and comfortable living space; reconciling the relationship among mankind, society and natural environment.

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